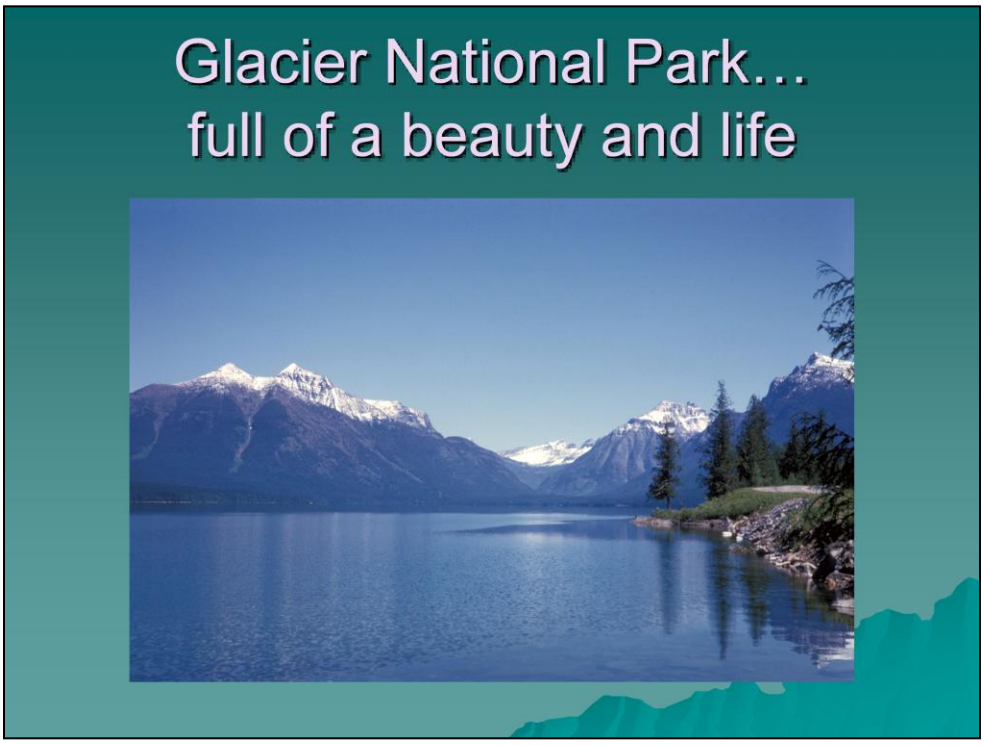
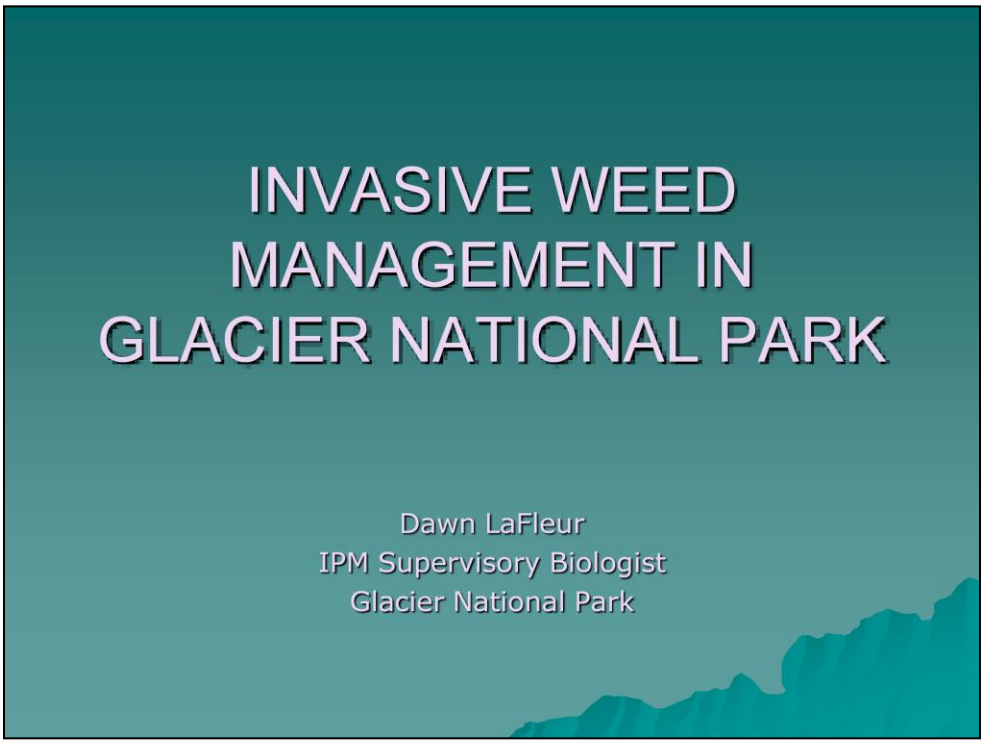


As breathtaking as the scenery is so too is the unique flora and fauna that inhabits the land in and around Glacier National Park.

Glacier National Park hosts over 1,000 native plant species within its borders as well as over 70 species of mammals, and 260 species of birds. The native plant communities are the foundation of this ecosystem and what all other life forms rely on. These plants stabilize the soil and provide nutrients and habitat to other plants, animals, and insects.

A major threat to these native plant communities is the invasion of non-native invasive plants. 126 non-native species exist within Glacier, many of which are ornamental species not considered harmful. Twenty of them, however, are considered invasive and threaten the diversity of the area's native flora as well as reduce wildlife habitat and increase soil erosion.



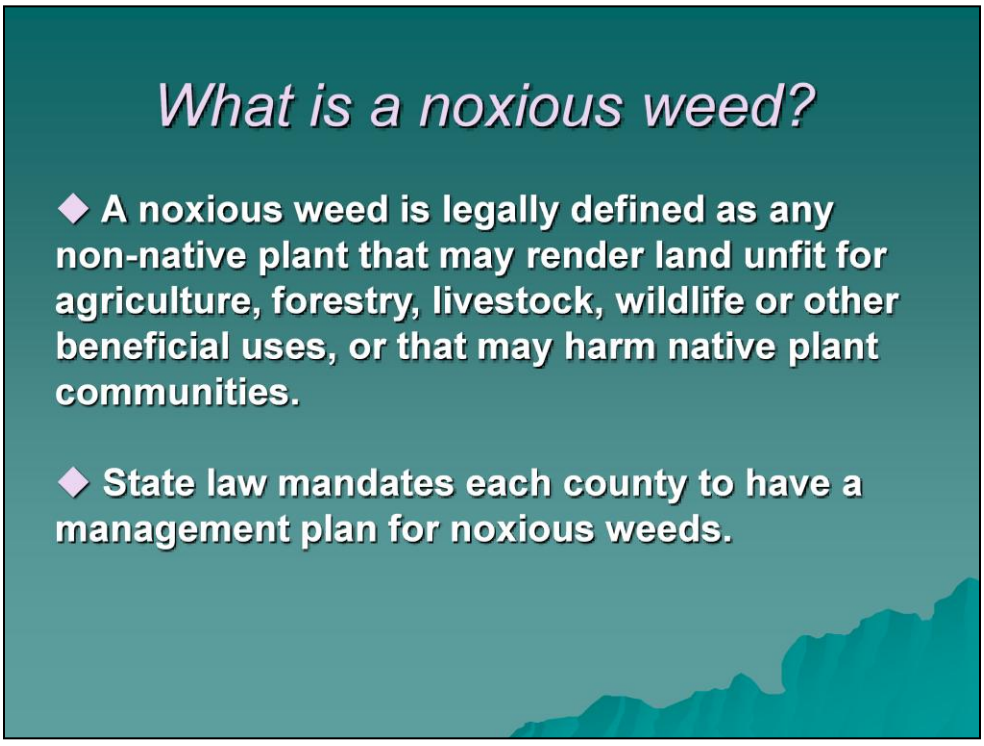
Glacier NP initiated an integrated weed management program in 1991. The program is based on National Park Service policy, which states that exotic species should be controlled if they displace native flora, interrupt ecological processes, or interfere with the interpretation of a natural scene.

Definitions

Native: a plant that has established naturally without human intervention and has existed for many years in a specific region or area (written record from Lewis & Clark for this area of the country).

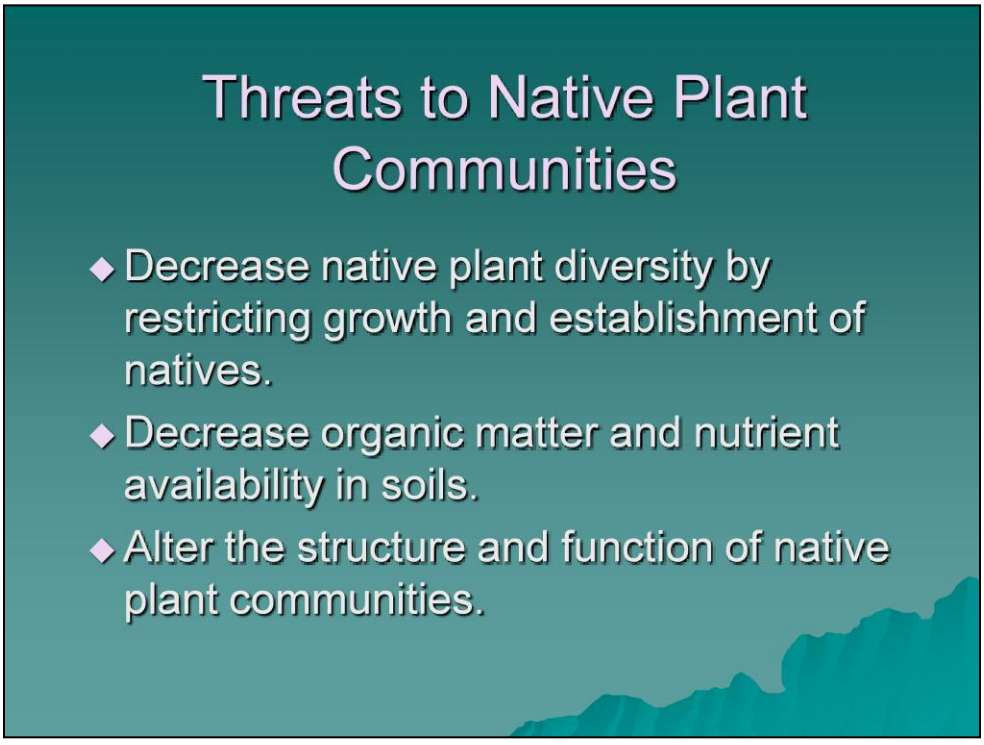
Exotic (non-native): comes from someplace else.

Weed: a plant out of place; a plant growing where it is not wanted. Even a native plant can be a weed if it's growing where it's not wanted.



Noxious Weed: unwanted non-native; usually from Eurasia – legally defined as any non-native plant that may render land unfit for agriculture, forestry, livestock, wildlife or other beneficial uses, or that may harm native plant communities.

Montana Noxious Weed List: organized into four categories with category 1 weeds listed at the top for their extensive spread and their ability to cause great damage to Montana's landscape.



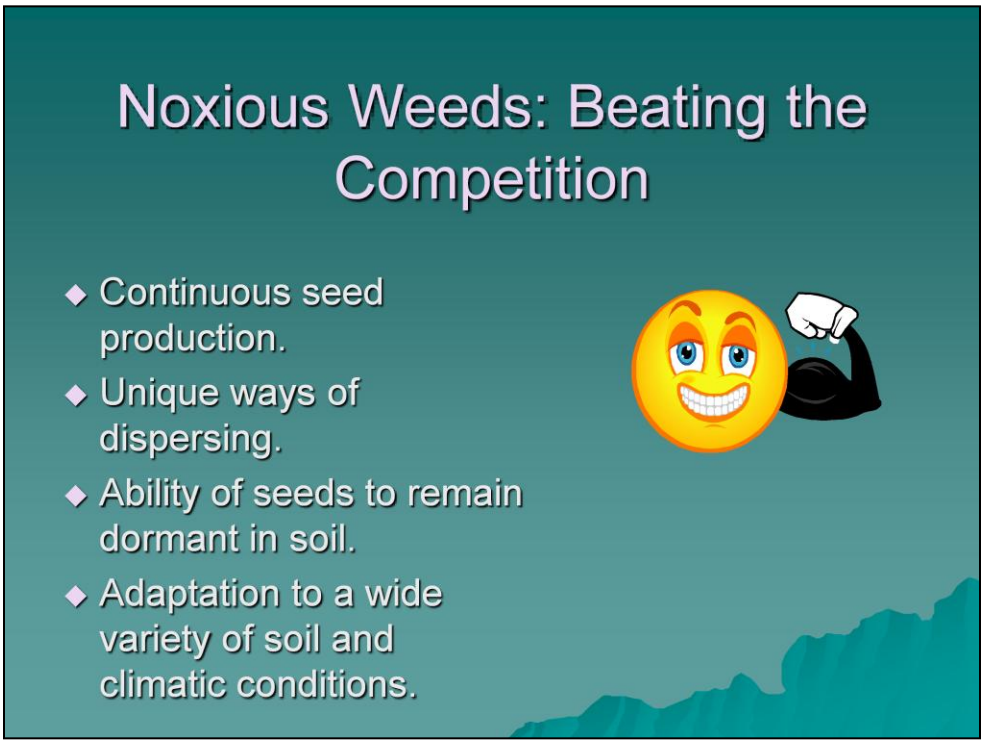
• Some invasive plants, such as Spotted knapweed, secrete a chemical into the ground through its roots that prevents seed germination of other plant species nearby.

• Others “choke” out native species by forming dense vegetation mats.

•Still others outcompete native species by having deep taproots that tap into needed water and nutrients first.

• In healthy plant communities, various native plants provide a variety of root systems that work together to hold the soil in place. When an invasive plant species takes over an area one type of root system dominates . This often leads to soil erosion, which can put local water resources at risk.

Most noxious weeds are inedible to both wildlife and livestock, and some are even poisonous. Large infestations on private and public land where livestock feed can severely limit the amount of forage necessary for these animals.



Beating the Competition

- Continuous seed production for as long as growing conditions permit
- Unique ways of dispersing and spreading
- Ability of seeds to remain dormant in soil for long periods of time
- Adaptation to a wide variety of soil and climatic conditions
- Compete well for soil moisture, nutrients, and sunlight

*Such a threat to crops, livestock, and wildlife that each county is mandated by state law to manage or control them.

Montana Noxious Weed List

10 % of Montana is covered with noxious weeds

Millions of dollars are spent each year trying to control them

Four categories are on the list, defining threat and management plan

Category One Weeds are non-native invasives that are currently established and generally widespread in the state. These weeds are capable of rapid spread and render land unfit or greatly limit beneficial uses.

Why Study the Five?

This Non-native Invasive Plant Citizen Science program is part of an overall goal of the Research Learning Center and the park's non-native plant biologist to help educate community members and park employees in identifying and studying several non-native invasive plants (or noxious weeds) that are a threat to Glacier National Park.

There are other non-native invasive species within the park but the five chosen species are on the category one list, are easy to identify, and bloom into the fall.

Spotted Knapweed
(*Centaurea maculosa)*

Spotted Knapweed

Introduced from Eurasia in the early 1900s in contaminated alfalfa and clover seed. Brought to the Flathead Valley for honey bees.

Biennial or short-lived perennial. Plant can get up to 4 feet tall.

Deep, stout taproot – helps the plant compete for water and nutrients.

Reproduces only by seed although root and crown fragments are able to resprout when disturbed. 10,000 – 20,000 seeds per plant.

Seeds are able to germinate, or begin to grow, from April to December. Seeds that do not germinate may remain viable in the soil for eight or more years.

Pinkish-purple flowers with rigid bracts below flower heads that have brown triangular tips. Leaves are alternate and pinnate.

Found in disturbed sites – fields, roadsides, and other open sunny areas.

Seeds are carried by wind but also move by water, animals, humans, machines, and vehicles.

OXEYE DAISY

(*Chyrsantheum leucanthemum)*

Oxeye Daisy

Showy perennial introduced from Eurasia as an ornamental.

Spindly, not as robust as the Shasta daisy.

White ray flowers and yellow disk flowers (flowers have an unpleasant odor).

Dispersed by seed and rhizomes (underground creeping roots).

Seeds moved by wind, soil movement, water, animals, humans, machines, vehicles, or if in commercial seed or hay.

Basal and lower stem leaves are on long stalks, stem leaves are alternate, toothed and lack stalks.

Found in disturbed areas, fields, meadows, roadsides, and forest openings.

Hand-pulling or digging before seed production is effective; chemicals only work at rosette stage.

Ground squirrels eat them and move seeds around.

*Quickly forms dense and expansive populations due to rhizomatous nature.

Houndstongue

Biannual forb – 1st year basal rosette, 2nd year flowering stem.

Rosette comprised of large leaves (up to 12 inches long); velvety leaves that lack teeth or lobes, rough to the touch, resembles a hound's tongue.

Flowering stem grows 1-4 feet; alternate elliptic to lance-shaped leaves that get smaller higher on the stem.

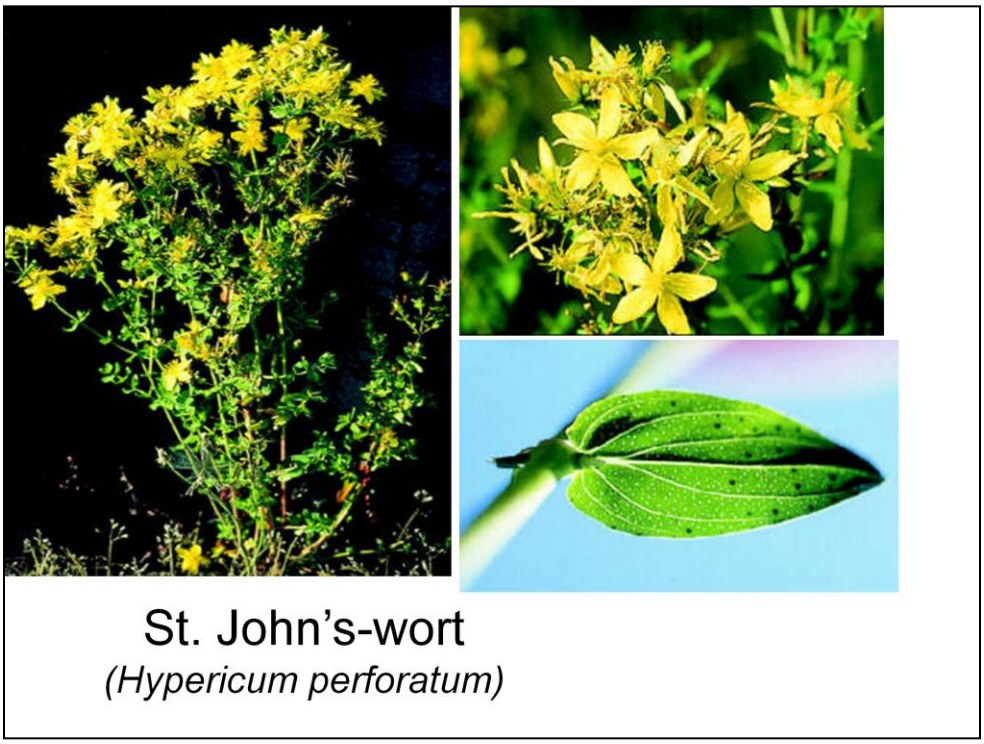
Five-petaled flower; reddish-purple, united at the base.

Native to Europe

Velcro seeds (hitchhikers) that are teardrop shaped; seeds stick to fur and clothing. One plant can produce 100s of seeds per year, viable for 2-3 years.

Shade tolerant; likes open forest and meadow areas, roads and trails, and disturbed areas.

*Hand pull and bag.



St. Johnswort

Multi-stemmed perennial forb with a deep taproot and lateral roots.

Stems are reddish and branch many times near the top; densely leaved.

Leaves are opposite, lack stalks and teeth, up to one inch long, oval with tiny transparent dots on the leaf surface that are apparent when held to the light.

Five-petaled yellow flowers with black dots along the edges of the petals.

Blooming begins in the center of the flower clusters.

Reproduces by seed and creeping rhizomes. Can move longer distances by soil movement, water, animals, humans, machines, and vehicles, or if in commercial seed or hay.

Found in disturbed areas, roadsides, pastures, meadows, forest openings, and burned areas. Likes full sun and dry soils.

Not eaten by wildlife or livestock; can be poisonous to white-fured animals.

*Each plant can produce 15,000 – 30,000 seeds per plant, which are viable for up to 10 years.

*Native St. Johnswort is found at higher elevations (treeline or above), is smaller, and lacks translucent dots.

Yellow Toadflax

(Linaria vulgaris)

Yellow Toadflax

Also called Butter and Eggs.

Lancelate leaves (thin-shaped like a sword).

Reproduces by seeds and roots (buds on the creeping rhizomes become shoots or roots and allow the plant to form large colonies).

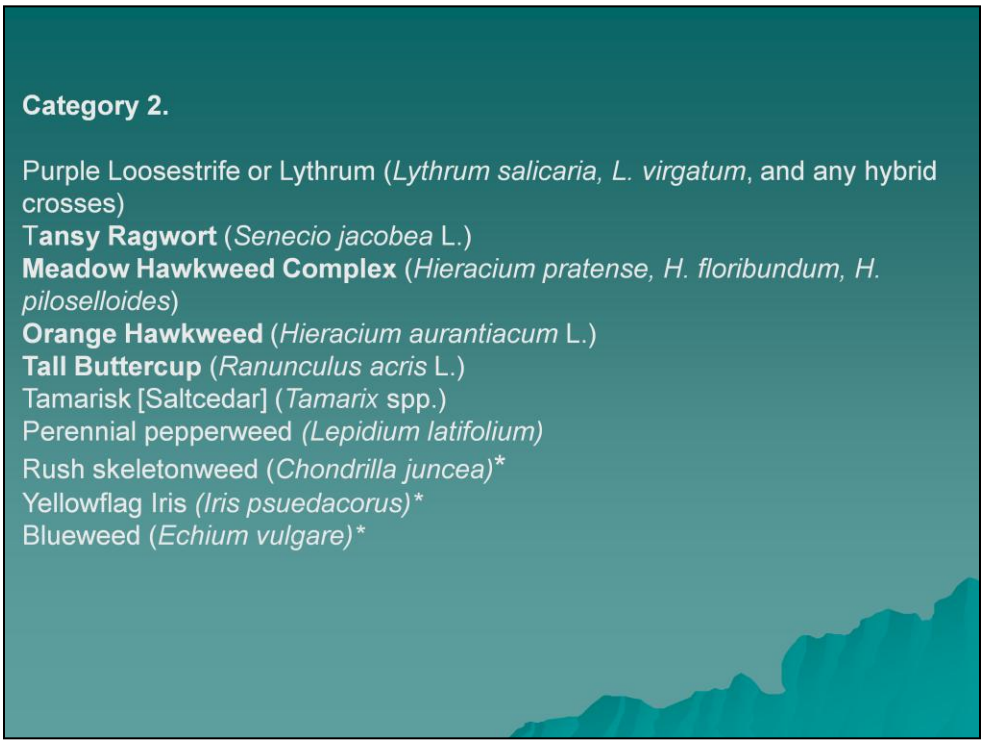
Introduced as an ornamental from Eurasia.

Snapdragon-like flowers grow on short stalks in dense clusters at the top of stems.

Flowers are yellow with orange throat and a downward-pointing yellow spur; one inch long.

*Hand pull; push for a bio-control (insect). Difficult to control chemically.

- Yellow toadflax is an aggressive competitor in grasslands and burned areas.
- Look for it next to down logs in areas that have recently burned intensely.
- Found in Big Prairie.



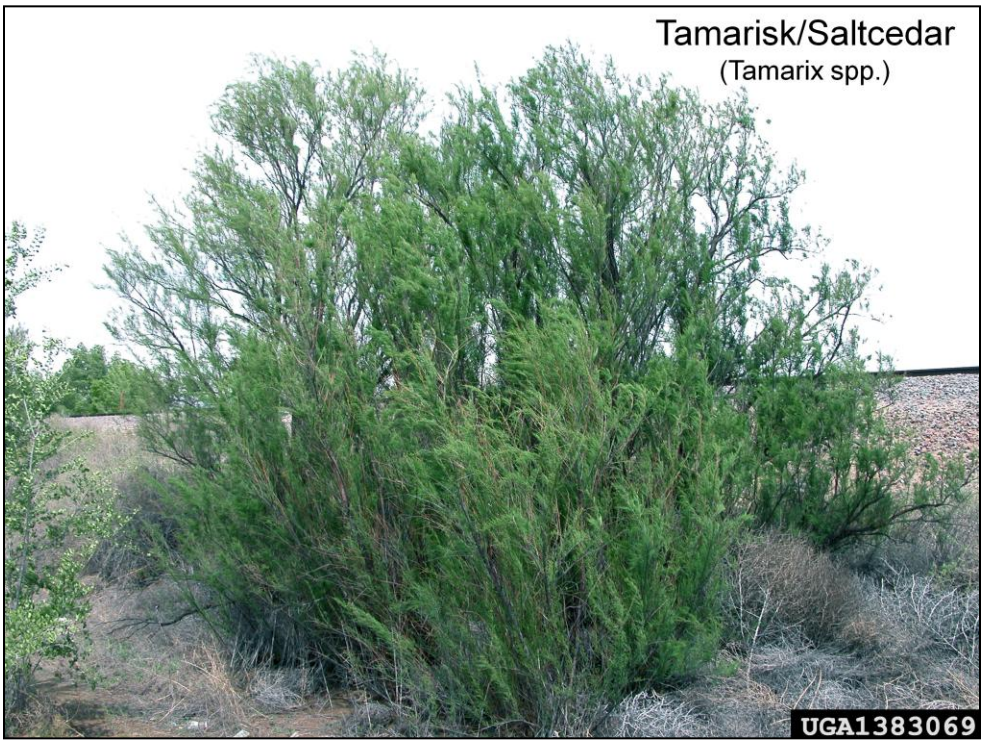
• Category 2 noxious weeds have recently been introduced into the state or are rapidly spreading from their current infestation sites.

• Orange hawkweed, Meadow hawkweed complex, Tall buttercup, and Tansy ragwort are all present in Glacier.

Purple Loosestrife

(Lythrum salicaria)

- Invades wetland areas.
- Square stem, opposite leaves, and pink-purple flowers in long, dense clusters.
- Might be confused with fireweed.
- Found in Lake County.

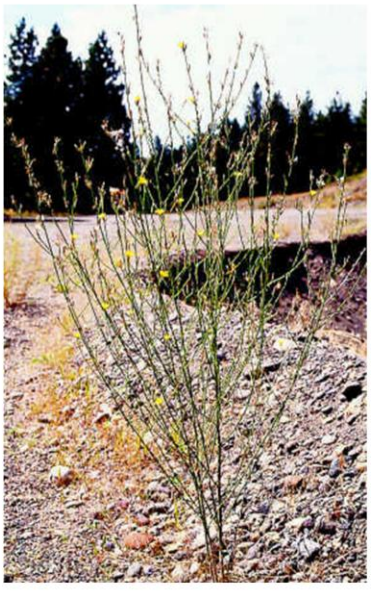


- 5-20 feet tall.
- Extensive root system that uses both surface and groundwater. Uses water that cottonwoods and willows need.
- Secretes salt and robs soil of nutrients.
- Dominant riparian species in southwestern U.S.
- Has been found in Montana along extensive river systems.

Tamarisk/Saltcedar in bloom.

Rush Skeletonweed

(Chondrilla juncea)



- Up to 4 feet tall
- Overall skeleton-like appearance.
- Small yellow flowers scattered along branches.
- Found all over the Sawtooth Range in Idaho.
- Hard to control chemically…have to mix herbicide with a surfactant (a sticky, soap-like liquid) in order for chemical to adhere to plant.

Category 3 noxious weeds have not been detected in the state or may be found in only small, scattered, localized infestations. These weeds are known pests in nearby states and are capable of rapid spread and render land unfit for beneficial uses.

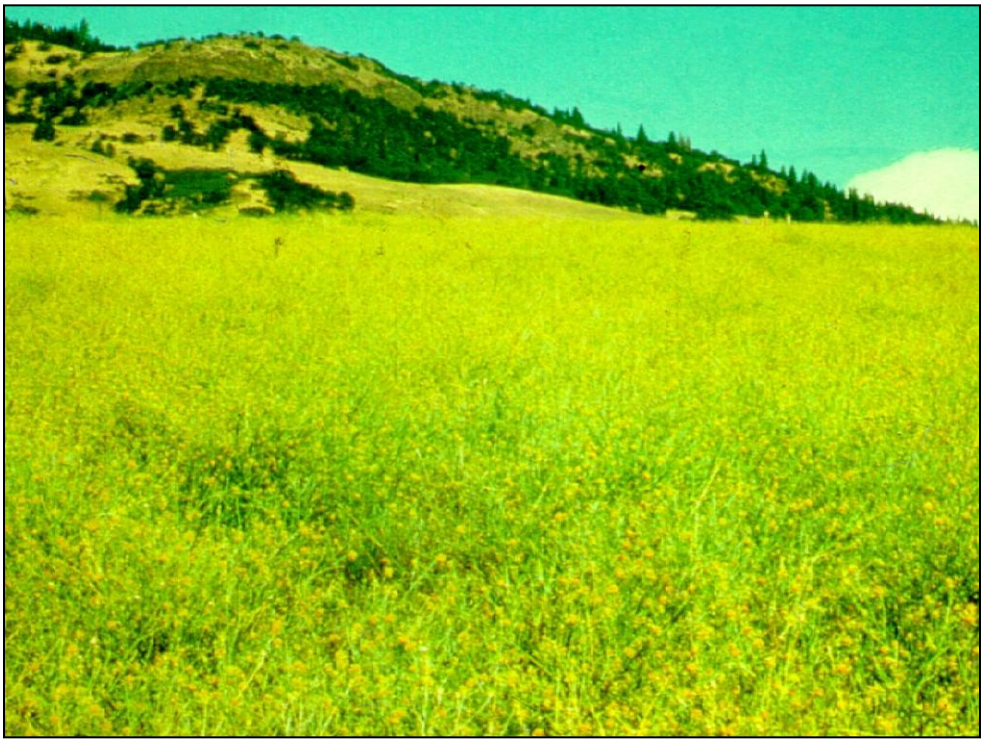
Yellow starthistle *(Centaurea solstitialis)*

- Takes over an area and becomes a monocrop.
- Found in Idaho…$50 bounty given to those who report found plants on the Montana/Idaho border.
- Up to five feet tall.
- Bright yellow flowers with long, sharp spines that radiate from bracts.
- Hairy “cotton ball” seedhead.
- Deep, stout taproot.

* Large plant can produce 75,000 seeds.

Yellow Starthistle Leaf

Wing-like leaves run down the length of the stem and help distinguish this plant from others.



This is a monocrop of Yellow starthistle found in California. We do not want to see this invasive plant here!